CLAIMS

What is claimed is:

1. A method of precisely controlling an amount of flatness or curvature of a lapping plate, the method comprising:

(a) providing a lapping plate and a workpiece;

(b) lapping the workpiece with the lapping plate; and

(c) controlling a temperature of the lapping plate to precisely manipulate an amount of flatness or curvature of the lapping plate.

2. The method of claim 1, wherein step (c) comprises exploiting a bimetallic effect to induce a linear expansion in the lapping plate so that the flatness or curvature of the lapping plate is manipulated with thermal cycling.

3. The method of claim 1, wherein step (a) comprises providing the workpiece as a magnetic slider.

4. The method of claim 1, wherein step (c) comprises configuring the lapping plate in a flat, concave, or convex shape.

5. The method of claim 1, further comprising giving the workpiece a high crown-to-camber ratio.

6. The method of claim 1, further comprising adjusting the temperature of the lapping plate during a charge process to selectively charge different areas of the lapping plate in a dictated order.

7. The method of claim 6, further comprising charging a middle diameter portion of the lapping plate first, and then charging an inner diameter portion of the lapping plate and/or an outer diameter portion of the lapping plate.

8. The method of claim 1, wherein step (c) comprises controlling a temperature of the workpiece and the abrasive slurry along with the temperature of the lapping plate.

9. The method of claim 1, wherein step (a) comprises forming the lapping plate from a plurality of layers of materials having different coefficients of linear expansion.

10. The method of claim 9, wherein step (a) comprises forming the layers from metal alloys.

11. The method of claim 9, wherein step (a) comprises forming the layers from a tin-antimony alloy and a steel alloy base.

12. A method of precisely controlling an amount of flatness or curvature of a lapping plate, the method comprising:

(a) forming a lapping plate from a plurality of layers of materials having different coefficients of linear expansion;

(b) lapping a slider with the lapping plate; and

(c) controlling a temperature of the lapping plate to precisely manipulate an amount of flatness or curvature of the lapping plate by exploiting a bimetallic effect to induce a linear expansion in the lapping plate so that the flatness or curvature of the lapping plate is manipulated with thermal cycling.

13. The method of claim 12, wherein step (c) comprises configuring the lapping plate in a flat, concave, or convex shape.

14. The method of claim 12, further comprising giving the slider a high crown-to-camber ratio.

15. The method of claim 12, further comprising adjusting the temperature of the lapping plate during a charge process to selectively charge different areas of the lapping plate in a dictated order.

16. The method of claim 15, further comprising charging a middle diameter portion of the lapping plate first, and then charging an inner diameter portion of the lapping plate and/or an outer diameter portion of the lapping plate.

17. The method of claim 12, wherein step (c) comprises controlling a temperature of the slider and the abrasive slurry along with the temperature of the lapping plate.

18. The method of claim 12, wherein step (a) comprises forming the layers from metal alloys.

19. The method of claim 12, wherein step (a) comprises forming the layers from a tin-antimony alloy and a steel alloy base.